

CLAIMS:

1. A nucleic acid molecule comprising a sequence of nucleotides encoding or complementary to a sequence encoding a novel haemopoietin receptor or derivative thereof having the motif:

Trp Ser Xaa Trp Ser [SEQ ID NO:1],

wherein Xaa is any amino acid.

2. A nucleic acid molecule according to claim 1 wherein Xaa is Asp or Glu.

3. A nucleic acid molecule according to claim 1 or 2 wherein said nucleic acid molecule is capable of hybridisation under low stringency conditions at 42°C to:

5' (A/G)CTCCA(A/G)TC(A/G)CTCCA 3' [SEQ ID NO:7]; and

5' (A/G)CTCCA(C/T)TC(A/G)CTCCA 3' [SEQ ID NO:8].

4. A nucleic acid molecule according to claim 3 comprising a sequence of nucleotides substantially as set forth in SEQ ID NO:12 or a nucleotide sequence having at least 60% similarity to the nucleotide sequence set forth in SEQ ID NO:12 or a nucleotide sequence capable of hybridising thereto under low stringency conditions at 42°C.

5. A nucleic acid molecule according to claim 3 comprising a sequence of nucleotides substantially as set forth in SEQ ID NO:14 or a nucleotide sequence having at least 60% similarity to the nucleotide sequence set forth in SEQ ID NO:14 or a nucleotide sequence capable of hybridising thereto under low stringency conditions at 42°C.

6. A nucleic acid molecule according to claim 3 comprising a sequence of

~~nucleotides substantially as set forth in SEQ ID NO:16 or a nucleotide sequence having at least 60% similarity to the nucleotide sequence set forth in SEQ ID NO:16 or a nucleotide sequence capable of hybridising thereto under low stringency conditions at 42°C.~~

7. A nucleic acid molecule according to claim 3 comprising a sequence of nucleotides substantially as set forth in SEQ ID NO:18 or 24 or a nucleotide sequence having at least 60% similarity to the nucleotide sequence set forth in SEQ ID NO:18 or 24 or a nucleotide sequence capable of hybridising thereto under low stringency conditions at 42°C.

8. A nucleic acid molecule according to claim 3 comprising a sequence of nucleotides substantially as set forth in SEQ ID NO:28 or a nucleotide sequence having at least 60% similarity to the nucleotide sequence set forth in SEQ ID NO:28 or a nucleotide sequence capable of hybridising thereto under low stringency conditions at 42°C.

9. A nucleic acid molecule according to claim 3 comprising a sequence of nucleotides substantially as set forth in SEQ ID NO:38 or a nucleotide sequence having at least 60% similarity to the nucleotide sequence set forth in SEQ ID NO:38 or a nucleotide sequence capable of hybridising thereto under low stringency conditions at 42°C.

10. A nucleic acid molecule according to claim 4 or 5 or 6 or 7 or 8 or 9 wherein said haemopoietin receptor is of murine origin.

11. A nucleic acid molecule according to claim 9 wherein said haemopoietin receptor is of human origin.

12. An expression vector comprising a nucleic acid molecule selected from the list consisting of:

- (i) a nucleotide sequence as set forth in SEQ ID NO:12;
- (ii) a nucleotide sequence as set forth in SEQ ID NO:14;
- (iii) a nucleotide sequence as set forth in SEQ ID NO:16;
- (iv) a nucleotide sequence as set forth in SEQ ID NO:18;
- (v) a nucleotide sequence as set forth in SEQ ID NO:24;
- (vi) a nucleotide sequence as set forth in SEQ ID NO:28; and
- (vii) a nucleotide sequence as set forth in SEQ ID NO:38.

13. A method for cloning a nucleotide sequence encoding a haemopoietin receptor having the characteristics of NR6 or a derivative thereof, said method comprising searching a nucleotide database for a sequence which encodes an amino acid sequence as set forth in one or more of SEQ ID NO:1; SEQ ID NO:7 and/or SEQ ID NO:8, designing one or more oligonucleotide primers based on the nucleotide sequence located in said search, screening a nucleic acid library with said one or more oligonucleotides and obtaining a clone therefore which encodes NR6 or a part or derivative thereof.

14. An isolated nucleic acid molecule comprising a sequence of nucleotides encoding a haemopoietin receptor or derivative thereof having an amino acid sequence substantially as set forth in SEQ ID NO:13 or having at least about 50% similarity thereto.

15. An isolated nucleic acid molecule comprising a sequence of nucleotides encoding a haemopoietin receptor or derivative thereof having an amino acid sequence substantially as set forth in SEQ ID NO:15 or having at least about 50% similarity thereto.

16. An isolated nucleic acid molecule comprising a sequence of nucleotides encoding a haemopoietin receptor or derivative thereof having an amino acid sequence substantially as set forth in SEQ ID NO:17 or having at least about 50% similarity thereto.

17. An isolated nucleic acid molecule comprising a sequence of nucleotides encoding a haemopoietin receptor or derivative thereof having an amino acid sequence substantially as set forth in SEQ ID NO:19 or having at least about 50% similarity thereto.

18. An isolated nucleic acid molecule comprising a sequence of nucleotides encoding a haemopoietin receptor or derivative thereof having an amino acid sequence substantially as set forth in SEQ ID NO:25 or having at least about 50% similarity thereto.

19. An isolated nucleic acid molecule comprising a sequence of nucleotides encoding a haemopoietin receptor or derivative thereof having an amino acid sequence substantially as set forth in SEQ ID NO:29 or having at least about 50% similarity thereto.

20. An isolated novel haemopoietin receptor comprising the amino acid motif:
Trp Ser Xaa Trp Ser [SEQ ID NO:1]
wherein Xaa is any amino acid.

21. An isolated haemopoietin receptor according to claim 20 wherein Xaa is Asp or Glu.

22. An isolated haemopoietin receptor according to claim 21 comprising the amino acid sequence substantially as set forth in SEQ ID NO:13.

23. An isolated haemopoietin receptor according to claim 21 comprising the amino acid sequence substantially as set forth in SEQ ID NO:15.

24. An isolated haemopoietin receptor according to claim 21 comprising the amino

acid sequence substantially as set forth in SEQ ID NO:17.

25. An isolated haemopoietin receptor according to claim 21 comprising the amino acid sequence substantially as set forth in SEQ ID NO:19.

26. An isolated haemopoietin receptor according to claim 21 comprising the amino acid sequence substantially as set forth in SEQ ID NO:25.

27. An isolated haemopoietin receptor according to claim 21 comprising the amino acid sequence substantially as set forth in SEQ ID NO:29.

28. A method for modulating expression of NR6 in a mammal, said method comprising contacting a genetic sequence encoding said NR6 with an effective amount of a modulator of NR6 expression for a time and under conditions sufficient to up-regulate or down-regulate or otherwise modulate expression of NR6, wherein the genetic sequence encoding said NR6 is selected from the nucleotide sequence set forth in SEQ ID NO:12 or 14 or 16 or 18 or 24 or 28 or 38 or is a sequence having at least about 60% similarity to at least one of SEQ ID NO:12 or 14 or 16 or 18 or 24 or 28 or 38 and is capable of hybridising thereto under low stringency conditions at 42°C.

29. A method of modulating activity of NR6 in a mammal, said method comprising administering to said mammal, a modulating effective amount of a molecule for a time and under conditions sufficient to increase or decrease NR6 activity wherein said NR6 comprises an amino acid sequence:

- (i) encoded by a nucleotide sequence selected from the nucleotide sequence set forth in SEQ ID NO:12 or 14 or 16 or 18 or 24 or 28 or 38 or a nucleotide sequence having at least 60% similarity to the nucleotide sequence set forth in SEQ ID NO:12 or 14 or 16 or 18 or 24 or 28 or 38 and which is capable of hybridising thereto under low stringency conditions at 42°C; and
- (ii) substantially as set forth in SEQ ID NO:12 or 14 or 16 or 18 or 32 or 30 or a

~~sequence having at least 50% similarity thereto.~~

30. A pharmaceutical composition comprising an NR6 receptor in soluble form and one or more pharmaceutically acceptable carriers and/or diluents wherein said NR6 comprises the amino acid sequence:

- (i) encoded by a nucleotide sequence selected from the nucleotide sequence set forth in SEQ ID NO:12 or 14 or 16 or 18 or 24 or 28 or 38 or a nucleotide sequence having at least 60% similarity to the nucleotide sequence set forth in SEQ ID NO:12 or 14 or 16 or 18 or 24 or 28 or 38 and which is capable of hybridising thereto under low stringency conditions at 42°C; and
- (ii) substantially as set forth in SEQ ID NO:12 or 14 or 16 or 18 or 32 or 30 or a sequence having at least 50% similarity thereto.

31. An isolated antibody or a preparation of antibodies to an NR6 receptor, said NR6 receptor comprising the amino acid sequence:

- (i) encoded by a nucleotide sequence selected from the nucleotide sequence set forth in SEQ ID NO:12 or 14 or 16 or 18 or 24 or 28 or 38 or a nucleotide sequence having at least 60% similarity to the nucleotide sequence set forth in SEQ ID NO:12 or 14 or 16 or 18 or 24 or 28 or 38 and which is capable of hybridising thereto under low stringency conditions at 42°C; and
- (ii) substantially as set forth in SEQ ID NO:12 or 14 or 16 or 18 or 24 or 28 or 38 or a sequence having at least 50% similarity thereto.

32. A transgenic animal comprising a mutation in at least one allele of the gene encoding NR6.

33. A transgenic animal according to claim 32 comprising a mutation in two alleles of the gene encoding NR6.

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34. A transgenic animal according to claim 33 or 34 wherein said animal is a murine animal.

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